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09/673,808	01/12/2001	Mark Poletti	0074-26485GW	5524

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EXAMINER

CHAU, COREY P

ART UNIT PAPER NUMBER

2615

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/673,808	<b>Applicant(s)</b> POLETTI, MARK	
	<b>Examiner</b> Corey P. Chau	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-13,15-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-13,15-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3-8, and 10-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure as shown in Fig. 1 discloses the sound system comprising "a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other space", but does not have support for "the **sound system processor comprising**: ...a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other space". Claim 8 essentially similar to Claim 1 and is rejected for the reasons stated above. Claims 3-7 are rejected for depending on a rejected Claim 1. Claims 10-12 are rejected for depending on a rejected Claim 8.

3. Claims 1, 3-8, 10-13, 15-18, and 20 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. "Sending the reproduction as the ultimate output to a number of loudspeaker or alternatively broadcasting them into a room is a novel feature of the claims of the present invention" (Remarks, page

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10), which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The disclosure discloses the processor, which generates a number of delayed reproductions as shown in Figs. 2, 3, 4 and 5. However, in Fig. 1, the processor outputs only two outputs. Therefore the disclosure does not clearly disclose in the disclosure for one of ordinary skill in the art to make or use the system in order to utilize the number of delayed reproductions to output two output signals from the processor. In this regards, the specification is merely an invitation to experiment, i.e. Applicant is requiring the public to disclose how to make the invention work, as opposed to disclosing it to the public.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 3-5, 8, 10-13, 15, 18, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5812674 to Jot et al. (hereafter as Jot).

6. Regarding Claim 1, Jot discloses a sound system processor for providing in-line early enhancement in a sound system, the sound system processor (Figs. 8-11) comprising:

multiple inputs for receiving multiple input signals from one or more microphones positioned close to one or more sound sources within a room or other spaces so as to detect predominantly direct sound (Figs. 1a-1f; column 12, lines 9-21);

an early reflection generating stage which has a finite impulse response and which without internal feedback generates a number of delayed discrete reproductions of the input signals, the early reflection generation stage comprising at least one cross-coupling matrix which is an orthonormal cross-coupling matrix, and the early reflection generation stage having a unitary transfer function matrix such that the sound system processor has an overall power gain that is constant with frequency to improve stability in the sound system, whereby the stability of the sound system in relation to said delayed discrete reproductions of the microphone signals is independent of delay times and amplitudes in the early reflection generation stage; and (Fig. 9; column 16, line 9 to column 17, line 37); and

a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other spaces (Figs. 1a-1f).

7. Regarding 3, Jot discloses the early reflection generation stage includes a series connection of two or more cross-coupling matrices with a set of delay lines positioned between the two matrices (741,742,750,810)(Fig. 9).
8. All elements of Claim 4 are comprehended by Claim 1. Claim 4 is rejected for the reasons stated above apropos to Claim 1.
9. Regarding Claim 5, Jot discloses each input is coupled to every output to provide a maximization of diffusion of the input signals to all of the outputs (Figs. 8-11).
10. Claim 8 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.
11. Claim 10 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.
12. Claim 11 is essentially similar to Claim 4 and is rejected for the reasons stated above apropos to Claim 4.
13. Claim 12 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos to Claim 5.
14. Claim 13 is essentially similar to Claims 1 and 3 and is rejected for the reasons stated above apropos to Claims 1 and 3.
15. Claim 15 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos to Claim 5.
16. Claim 18 is essentially similar to Claims 8 and 10 and is rejected for the reasons stated above apropos to Claims 8 and 10.

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17. Claim 20 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos to Claim 5.

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5812674 to Jot in view of PCT/NZ93/00041 to Poletti.

20. Regarding Claim 6, Jot discloses a unitary in-line early reflection enhancement system, but does not expressly disclose in combination with a wideband non-in-line assisted reverberation system which increase apparent room volume, including multiple loudspeakers to broadcast sound into room, and reverberation matrix connecting a similar bandwidth signal from each microphone through one or more reverberators having an impulse response consisting of a number of echoes the density of which increases over time, to one or more loudspeakers. Poletti discloses a wideband assisted reverberation system which increases apparent room volume, including multiple loudspeakers to broadcast sound into the room, and a reverberation matrix connecting a similar bandwidth sound from each microphone through one or more reverberators having an impulse response consisting of a number of echoes the density of which increases over time, to one or more loudspeakers (claims 1 and 2) in order to

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improve and control the acoustic of a concert hall or auditorium (page 1, paragraph 0001). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Jot with the teaching of Poletti to combine the unitary in-line early reflection enhancement system with a wideband non-in-line assisted reverberation system in order to improve and control the acoustic of a concert hall or auditorium.

21. Regarding Claim 7, Jot as modified discloses said wideband non-in-line assisted reverberation system the reverberation matrix connects a similar bandwidth signal from each microphone through one or more reverberators to at least two loudspeakers each of which receives a signal comprising a sum of at least two reverberated microphone signals (claims 1, 2, and 3).

22. Claim 16 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

23. Claim 17 is essentially similar to Claim 7 and is rejected for the reasons stated above apropos to Claim 7.

### ***Response to Arguments***

24. Applicant's arguments filed 5/05/2006 and 6/30/2006 have been fully considered but they are not persuasive.

25. With respect to Applicant's argument on page 8, stating that "Jot et al. does not describe a sound system processor that has an early reflection stage having "a unitary transfer function matrix such that the sound system processor has an overall power gain



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that is substantially constant with frequency to improve stability in the sound system”, and Applicant’s argument on page 9, stating that the “system and method described and shown in Jot et al. provide reflections and reverberations that are combined together to provide the output signals to the loudspeaker. The functions of the various subcomponents of the Joe et al. system are combined such that transfer function of the system processor is not unitary overall”, has been noted. However the Examiner respectfully disagrees. Jot discloses an early reflection stage similar to that of the Applicant’s invention shown in Figs. 2, 3, 4, and 5, wherein the early reflection stage of Jot comprising a delay 731, an unitary mixing matrix 741, a delay 742, and an unitary mixing matrix 750, in which the output signals may be directly reproduced on a loudspeaker device when the processor in its simplest configuration comprises only the “room” module (column 4, lines 35-50). Furthermore, the Applicant’s disclosure discloses a processor, which generates a number of delayed reproductions as shown in Figs. 2, 3, 4 and 5, however, in Fig. 1, the processor outputs only two output signals. Therefore it is unclear how the Applicant’s invention differs from Jot, wherein Applicant’s invention is configured to have an unitary transfer function when there are number of delayed reproductions produced by the processor, when the processor outputs only two output signals. Therefore, Jot provides a unitary transfer function matrix such that the sound system processor has an overall power gain that is constant with frequency to improve stability in the sound system. See Fig. 9.

26. In response to applicant’s argument on page 10, that the references fail to show certain features of applicant’s invention, it is noted that the features upon which

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applicant relies (i.e., directly output to loudspeaker) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

27. With respect to Applicant's argument on page 10, stating that the "system outputs are generated such that the system output power gain is not constant with frequency because of the additional signal processing performed on the outputs of the delay line (731) and on the outputs of the unitary mixing matrix (741)", has been noted. However, the Examiner respectfully disagrees. See arguments above.

With respect to Applicant's argument on page 10, stating that the "outputs R2 are produced from combined outputs of the matrix 741 through the delay 742, resulting in a non-unitary characteristic", has been noted. However, the Examiner respectfully disagrees. See arguments above.

28. With respect to Applicant's argument on page 10, stating that in "the apparatus described in Jot et al., the only output that might be sent to loudspeaker or broadcast emanates from a subsystem (such as delays 731, 742, and matrix 741) that does not have a unitary transfer function matrix", has been noted. However the Examiner respectfully disagrees. See arguments above.

29. With respect to Applicant's argument on page 11, stating "Each of the outputs of the sound processing room module of Jot et al. are formed in a manner such that none of them meet the requirement of having a total power gain that is substantially constant

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with frequency to provide stability in the sound system", has been noted. However the Examiner respectfully disagrees. See arguments above.

30. With respect to Applicant's argument on page 12, stating that "in considering the system in relation to outputs S1-S4, the section of the room module that generates those outputs does not have a unitary transfer function and the overall system producing those outputs does not have constant power gain with frequency to provide stability", has been noted. However the Examiner respectfully disagrees. See arguments above.

31. With respect to Applicant's argument on page 13, stating that "Jot et al. uses various components and combines them in a different manner than the Applicant's claimed sound processor in order to simulate virtual sound sources. For example, the Jot et al. system adds reverberation o early reflections. Therefore, the resulting transfer function is not unitary", has been noted. However the Examiner respectfully disagrees. See arguments above.

32. With respect to Applicant's argument on page 14, stating that "Further, the overall transfer function matrix of the early reflection and reverberation sections is not unitary to provide an overall power gain substantially constant with frequency. Therefore, the room module of Jot et al. does not have a series of matrices and delays as called for in Claims 13 and 18 and cannot provide the benefit of enhanced reflections which are provided by the Applicant's claimed early reflection enhancement system and

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method as set forth in Claims 13 and 18", has been noted. However the Examiner respectfully disagrees. See arguments above and Fig. 9, reference number 731, 741, 742, and 750.

33. With respect to Applicant's argument on page 16, stating that "Applicant submits that WO 93/23847 does not disclose the features of the Applicant's claimed system that are missing from Jot et al. Therefore, the proposed combination would not anticipate the Applicant's claimed system as set forth in Claims 6 and 7" has been noted. However the Examiner respectfully disagrees. See arguments above.

### ***Conclusion***

34. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 22, 2006  
CPC

  
**XU MEI**  
**PRIMARY EXAMINER**